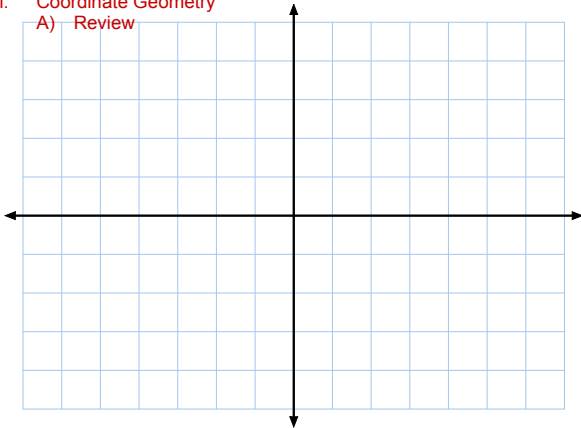


Jun 8-2:09 PM

I. Coordinate Geometry
A) Review



Jun 12-10:01 PM

1.2

Building Blocks of Geometry

A) Point

a location in space

- 1) has no size
- 2) Named by ONE capital letter

B) Space

the set of all points

C) Line

extends in opposite directions without end

- 1) has no width
- 2) cannot be measured
- 3) named by TWO capital letters or ONE lower case cursive letter

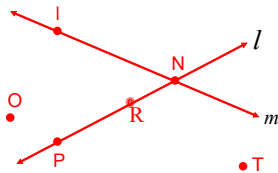


Aug 10-9:04 PM



Aug 10-9:35 PM

3) Collinear Points are points that lie on the same line



a) Any two points are collinear!!

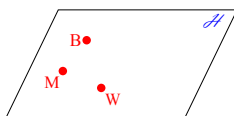
b) Name each line two ways

Aug 10-9:42 PM

D) Plane

a flat surface with no thickness

- 1) extends in all directions without end
- 2) named by ONE cursive capital letter or 3 non-collinear points



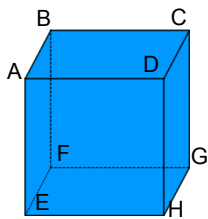
3) Name the plane two ways

Aug 10-9:49 PM



Aug 10-9:35 PM

3) Points and lines in the same plane are coplanar.



- Any three points are coplanar!!
- name a plane that contains segment FG?
- Name the planes that contain D?

Aug 10-9:42 PM

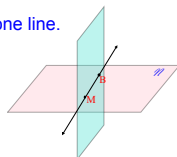
III. Plane Postulates

A) ~~Postulate~~ (or axiom) is an accepted statement of fact.

1) Two points determine a line.



2) Two planes intersect in exactly one line.



3) Three non-collinear points determine exactly one plane.



Aug 15-8:00 PM

Bellwork

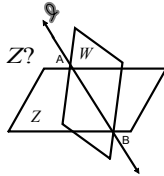
1. Complete: ____ points determine a line. ____ points determine a plane.

2. Give two names for a line that contains points A and B.

Refer to the figure for questions 3 and 4.

3. Name a line in plane Z.

4. How many lines are in the plane Z?



Aug 24-7:07 AM

Notes: Section 1.3 - Using Formulas

I. Area: amount of space inside the figure (expressed in units squared)

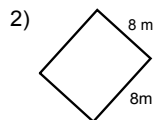
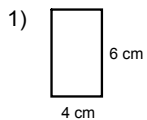
$$A = l * w$$

II. Perimeter: distance around a figure

$$P = 2l + 2w$$

Aug 24-7:32 AM

ex: Find the perimeter and area of each rectangle.



ex: Find the missing measure in each formula.

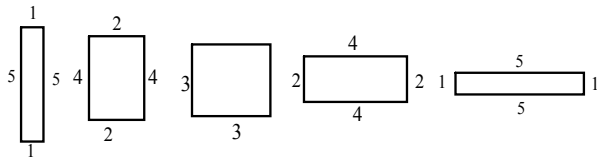
3) $l = 3$, $w = ?$, $P = 20$

4) $l = ?$, $w = 4$, $A = 36$

Aug 24-7:32 AM

III. Max Area: when given a figures perimeter, you can find the most space that figure will contain.

ex: One type of pet enclosure is made up of 12 sections of fencing, connected by hinges. This enclosure folds for easy storage and is flexible for making different-sized areas in which your pet can play. Suppose the sections are positioned to make a rectangle. What are the dimensions of the rectangle that provided the maximum area for your pet?



Aug 24-7:37 AM

w	l	Area = l * w
1	5	5
2	4	8
3	3	9
4	2	8
5	1	5

Aug 24-7:38 AM

CP

$$\begin{array}{l}
 1) 10 + x = -4 \\
 2) 7 = 15 - x \\
 3) 12 = -3x \\
 4) \frac{x}{10} = -3 \\
 5) 20 = \frac{4}{3}x
 \end{array}
 \left\{
 \begin{array}{l}
 6) 17 = 15 - 2x \\
 7) 7x + 4 = 10x - 11 \\
 8) 7x + 8 - 11x = 2 - x \\
 9) 3(x - 2) - x = 14 \\
 10) 7(x + 4) + 3x - 12 = 2x
 \end{array}
 \right.$$

Jan 24-9:59 AM

Hom

1) $11 - y = 4$

2) $\frac{a}{5} = -3$

3) $6y = -14$

4) $7a - 10a = 3a + 6$

5) $7(4x + 3) = 10$

6) $-1 + 2(m + 1) = 5(2m - 3)$

7) $2a - (a + 4) = 10$

8) $\frac{2}{3}x - 11 = 2$

Jan 24-10:00 AM

1.4

Geometric terms

A) Segment

part of a line with two endpoints.



CG represents the measure of the segment

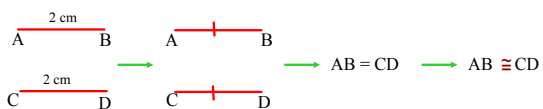
\overline{CG} represents the picture of the segment

Aug 15-8:27 PM

Measuring Segments and Angles

A) Congruent Segments have the same length

B) Congruent Angles have the same degree measure



measure of AB = _____

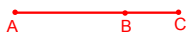
AB means

\cong means

Aug 15-9:33 PM

Segment Addition Postulate (SAP)

If three points A, B, and C are collinear and B is between A and C, then



$$AB + BC = AC$$

Examples:

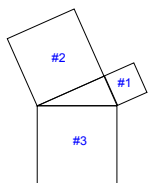
1. If B is between A and C
 $AC = 23$
 $AB = 2x - 6$
 $BC = x - 7$
 Find AB and BC

Aug 15-10:00 PM

2. If N is between A and B
 $AN = 4x - 20$
 $AB = x + 40$
 $NB = 2x + 30$
 Find AB

3. If N is between A and B
 $AN = \frac{2}{3}(4x - 5)$
 $BN = \frac{1}{3}$
 $AB = \frac{3}{5}(2x + 1)$
 Find AN, BN, AB

Aug 15-10:10 PM



If each square was a piece of gold, which would you rather be given:

- a) both piece #1 and #2 or
- b) piece #3

A) Pythagorean Theorem

the sum of the squares of the legs (sum of the area of #1 and #2) are equal to the square of the hypotenuse (area of #3)

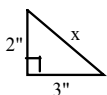
In the right triangle, a and b are the legs and c is the hypotenuse, then

$$a^2 + b^2 = c^2$$

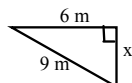
Aug 29-9:54 AM

Ex:

1)



2)



3)

leg = 9 cm
leg = _____
hypotenuse = 15 cm

Hint: Check your measures...the hypotenuse should be the longest.

Aug 29-9:47 AM

B) Pythagorean Triples

a set of three positive integers that makes the pythagorean theorem true.

Ex:

Are the sets of numbers pythagorean triples?

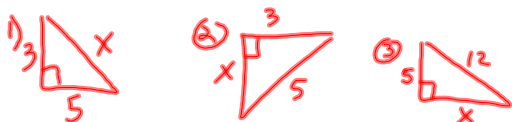
1) 12, 16, 20

2) 9, 40, 41

3) 18, 24, 32

One of the most common triples is 3 - 4 - 5.

Aug 29-10:18 AM



B is between X & D

$$\begin{array}{ll} \textcircled{4} \quad XB = 3X & X = ? \\ \quad \quad XD = 8 & \quad \quad \quad \\ \quad \quad BD = 5X & \quad \quad \quad \end{array} \quad \begin{array}{ll} \textcircled{5} \quad XD = 50 & X = ? \\ \quad \quad XB = 3(X+7) & XB = ? \\ \quad \quad BD = 2(X-3) & \end{array}$$

④ Find the distance between $(-3, 10)$ & $(4, -1)$

Aug 26-12:36 PM

C) Distance between two points

1) on the number line $D = |a - b|$

2) on the coordinate plane

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Ex: Find AB if you are given the following points:

1) A(4, 8) and B(2, -3)

2) A(-1, -2) and B(2, 4)

Jun 12-10:06 PM

1.5

A) Midpoint on a number line (average the endpoints) $(a+b)/2$

X is the midpoint of R and S R=5, S=-9 X=_____

R= 8, X= 3 S= _____

B). Midpoint of a segment
(average of the endpoints)

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Aug 29-12:52 PM

midpoint = _____

Ex: If M is the midpoint of the segment AB,

1) Find M if
A(8, 9)
B(-6, -3)

2) Find M if
A(-3, -5)
B(2, 7)

3) Find B if
A(1, 4)
M(-1, 5)

Aug 26-8:12 AM

- C) Midpoint is a point that divides a segment into two congruent segments
- D) Segment Bisector- segment that intersects at the midpoint of a segment
- E) Perpendicular Bisector is a line, segment or ray that forms a right angle at its midpoint.

Examples: If C is the midpoint of \overline{AB} :

4. $AC = 5x + 9$
 $CB = 8x - 36$
 Find AC

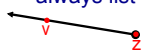
5. $BC = 2x + 5$
 $AB = 3x + 18$
 Find AB

Aug 15-10:21 PM

1.6 Angles

A) Ray

part of a line with one endpoint
 always list the endpoint first



B) Opposite Rays

two collinear rays with a common endpoint
 always forms a line

Aug 15-8:50 PM

Angle Relationships

A) Angle

formed by two rays with the same endpoint



B) Acute Angle measures > 0 and < 90

C) Right Angle measures $= 90$

D) Obtuse Angle measures > 90 and < 180

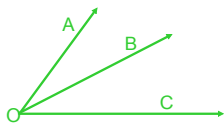
E) Straight Angle measure $= 180$

F) Perpendicular Lines are lines that intersect to form right angles

Aug 15-9:02 PM

Angle Addition Postulate (AAP)

- 1) If pt B is in the interior of $\angle AOC$, then
 $m\angle AOB + m\angle BOC = m\angle AOC$



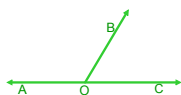
- 2) If $\angle AOC$ is a straight angle, then
 $m\angle AOB + m\angle BOC = 180$

Aug 15-10:27 PM

Examples:

1. If pt B is in the interior of $\angle AOC$,
 $m\angle AOB = x + 3$
 $m\angle BOC = 2x + 4$
 $m\angle AOC = 25$
 Find $m\angle BOC$

2. $m\angle AOB = 4x + 15$
 $m\angle BOC = x + 25$
 Find x



Aug 15-10:39 PM

D) Angle Bisector is a ray that divides an angle into two congruent angles

Examples:

3. Find $m\angle AWB$ if \overrightarrow{WR} bisects $\angle AWB$ and
 $m\angle AWR = x$
 $m\angle BWR = 4x - 48$

Aug 28-8:06 AM

1.7

Complementary Angles

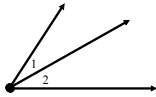
two angles whose measures have a sum of 90

Supplementary Angles

two angles whose measures have a sum of 180

Adjacent Angles

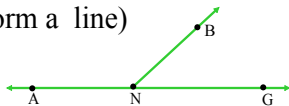
two coplanar angles with a common side, common vertex



Aug 15-9:19 PM

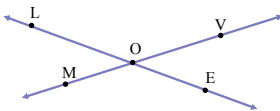
Linear Pair

a pair of angles that are adjacent and supplementary
(they form a line)



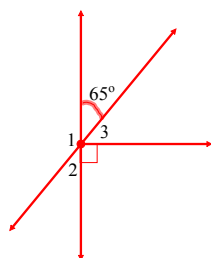
Vertical Angles

two non-adjacent angles formed by intersecting lines



All vertical angles are congruent

Aug 15-9:24 PM

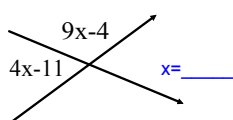


Find the measure of each:

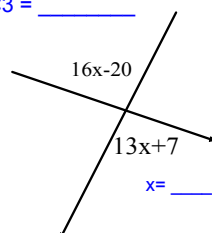
$$m\angle 1 = \underline{\hspace{2cm}}$$

$$m\angle 2 = \underline{\hspace{2cm}}$$

$$m\angle 3 = \underline{\hspace{2cm}}$$

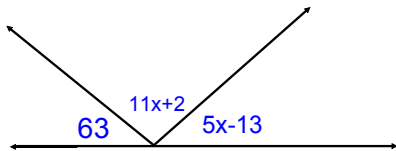


$$x = \underline{\hspace{2cm}}$$



$$x = \underline{\hspace{2cm}}$$

Aug 15-9:40 PM



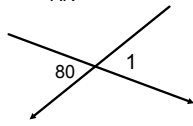
$x = \underline{\hspace{2cm}}$

Sep 2-1:15 PM

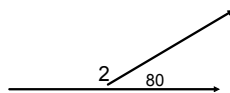
____ pts determine a line
 ____ pts determine a plane

R
 \approx
 r
 AR
 \overline{AR}
 \vec{AR}

postulate-
 theorem-



$m\angle 1 =$ Why?



$m\angle 2 =$ Why?

Feb 3-3:10 PM

Theorems

1. vertical angles



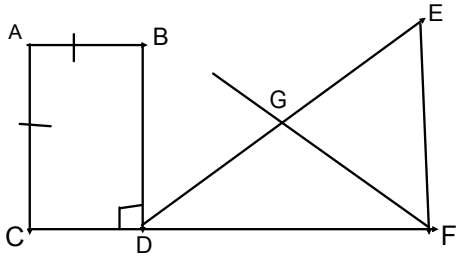
2. angles in a linear pair are



3. Perpendicular lines form



Feb 3-3:17 PM



Can you assume the following things?

Feb 3-3:27 PM

p 62

15) III

16) no

17) A

18) line AB, ...

19) 45 mph

20) 5.5in

21) 56.25 cm

22) 3. 5

23) 3.5

24) T, S

25) 5

26) $\sqrt{104}$

27) $\sqrt{149}$

28) $\sqrt{73}$

29) (5.5, -0.5)

30) 1 and 5 or...

31) 12

32) 24 or-12

33) yes

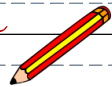
34) 18

35) 148

36) 17

Feb 8-7:06 AM

HOMEWORK



CP: pg 29 #1 - 16

pg 32 #70-73

pg 47 #8 - 19

Aug 15-8:21 PM

VI. Patterns and Reasoning

A) Inductive Reasoning

reasoning based on patterns you observe

B) Conjecture

educated guess

Make a conjecture:

1. $\angle A$ is complementary to $\angle B$

2. $\angle A$ and $\angle B$ are a linear pair

3. A, B, C then $AB = 10$, $BC = 8$ and $AC = 5$

C) Counterexample

An example that makes a conjecture false.

Ex: #1 The sum of two prime numbers is a prime number.

#2 Given: P, Q, R are collinear

conjecture: Q is between P and R

#3 Given: A, B, C are collinear and B is between A & C

Conj: B is the midpoint of \overline{AC}

Aug 15-11:02 PM

B. Counterexample: shows that a conditional is false.

1. Only one counterexample is needed to show that a conditional is false.

2. Statements or pictures can be used as counterexamples.

Ex: Find a counterexample to show the conditional is false.

1) If $x^2 \geq 0$, then $x \geq 0$.

2) If you live in SC, then you live in Charleston.

3) If B is between A and C, then B is the midpoint of \overline{AC} .

Jun 16-10:37 AM

D) Deductive Reasoning

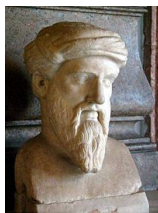
process of facts, definitions, accepted properties in a logical order

Ex: Give an example of deductive reasoning

Aug 29-8:57 AM

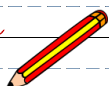
Pythagoras and his students believed that everything was related to mathematics and that numbers were the ultimate reality, and, through mathematics, everything could be predicted and measured in rhythmic patterns or cycles.

What type of reasoning did Pythagoras probably use?



Aug 29-9:11 AM

HOMEWORK

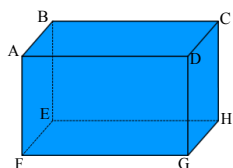


CP: pg 7 #29 - 31
#34 - 37
pg 538 #7 - 15 (odd)
#19 - 24

Aug 15-8:21 PM

D) Parallel lines
coplanar lines that never intersect

E) Skew Lines
non-coplanar lines that never intersect



Aug 15-8:57 PM

Attachments

UNIT 1 (PP).ppt